

p: tac
AAATGAGCTG TTGACAATTA ATCATCGGCT CGTATAATGT GTGGAATTGT GAGCGGATAA
EcoRI SacI KpnISmaI
CAATTTTCACA CAGGAAACAG AATTCGAGCT CGGTACCCGG GCTACATGGA GATTAACCTCA
RBS | -> α-globin
ATCTAGAGGG TATTAATAAT GTATCGCTTA AATAAGGAGG AATAACATAT GGTGCTGTCT
CCTGCCGACA AGACCAACGT CAAGGCCGCC TGGGGTAAGG TCGGCGCGCA CGCTGGCGAG
TATGGTGCGG AGGCCCTGGA GAGGATGTTT CTGTCCTTCC CCACCACCAA GACCTACTTC
CCGCACTTCG ATCTGAGCCA CGGCTCTGCC CAGGTTAAGG GCCACGGCAA GAAGGTGGCC
GACGCGCTGA CCAACGCCGT GGCGCACGTG GACGACATGC CCAACGCGCT GTCCGCCCTG
AGCGACCTGC ACGCGCACAA GCTTCGGGTG GACCCGGTCA ACTTCAAGCT CCTAAGCCAC
TGCCTGCTGG TGACCTTGGC CGCCACCTC CCCGCCGAGT TCACCCCTGC GGTGCACGCC
TCCCTGGACA AGTTCCTGGC TTCTGTGAGC ACCGTGCTGA CCTCCAAATA CCGTTAACT
RBS | -> β-globin
AGAGGGTATT AATAATGTAT CGCTTAAATA AGGAGGAATA ACATATGGTG CACCTGACTC
CTGAGGAGAA GTCTGCCGTT ACTGCCCTGT GGGGCAAGGT GAACGTGGAT GAAGTTGGTG
GTGAGGCCCT GGGCAGGCTG CTGGTGGTCT ACCCTTGGAC CCAGAGGTTC TTTGAGTCCT
TTGGGGATCT GTCCACTCCT GATGCTGTTA TGGGCAACCC TAAGGTGAAG GCTCATGGCA
AGAAAGTGCT CGGTGCCTTT AGTGATGGCC TGGCTCACCT GGACAACCTC AAGGGCACCT
TTGCCACACT GAGTGAGCTG CACTGTGACA AGCTGCACGT GGATCCTGAG AACTTCAGGC
β108Asn->Gln
TCCTGGGACA AGTACTGGTC TGTGTGCTGG CCCATCACTT TGGCAAAGAA TTCACCCAC
CAGTGCAGGC TGCCTATCAG AAAGTGGTGG CTGGTGTGGC TAATGCCCTG GCCACAAGT
->| SphI rrB (5S, T1, T2)
ATCACTAAGC ATGCATCTGT TTTGGCGGAT GAGAGAAGAT TTTCAGCCTG ATACAGATTA
NsiI
.....

FIG. 1A

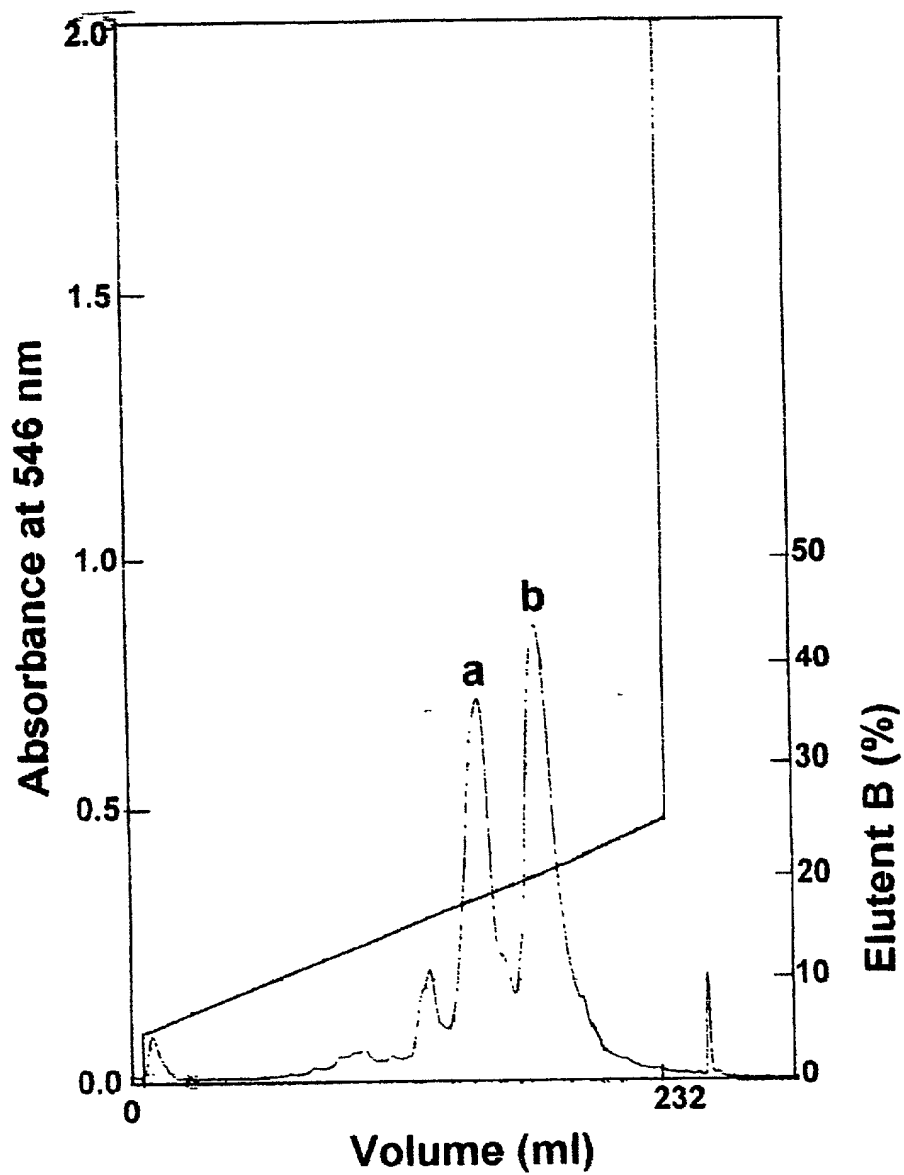


FIG. 2A

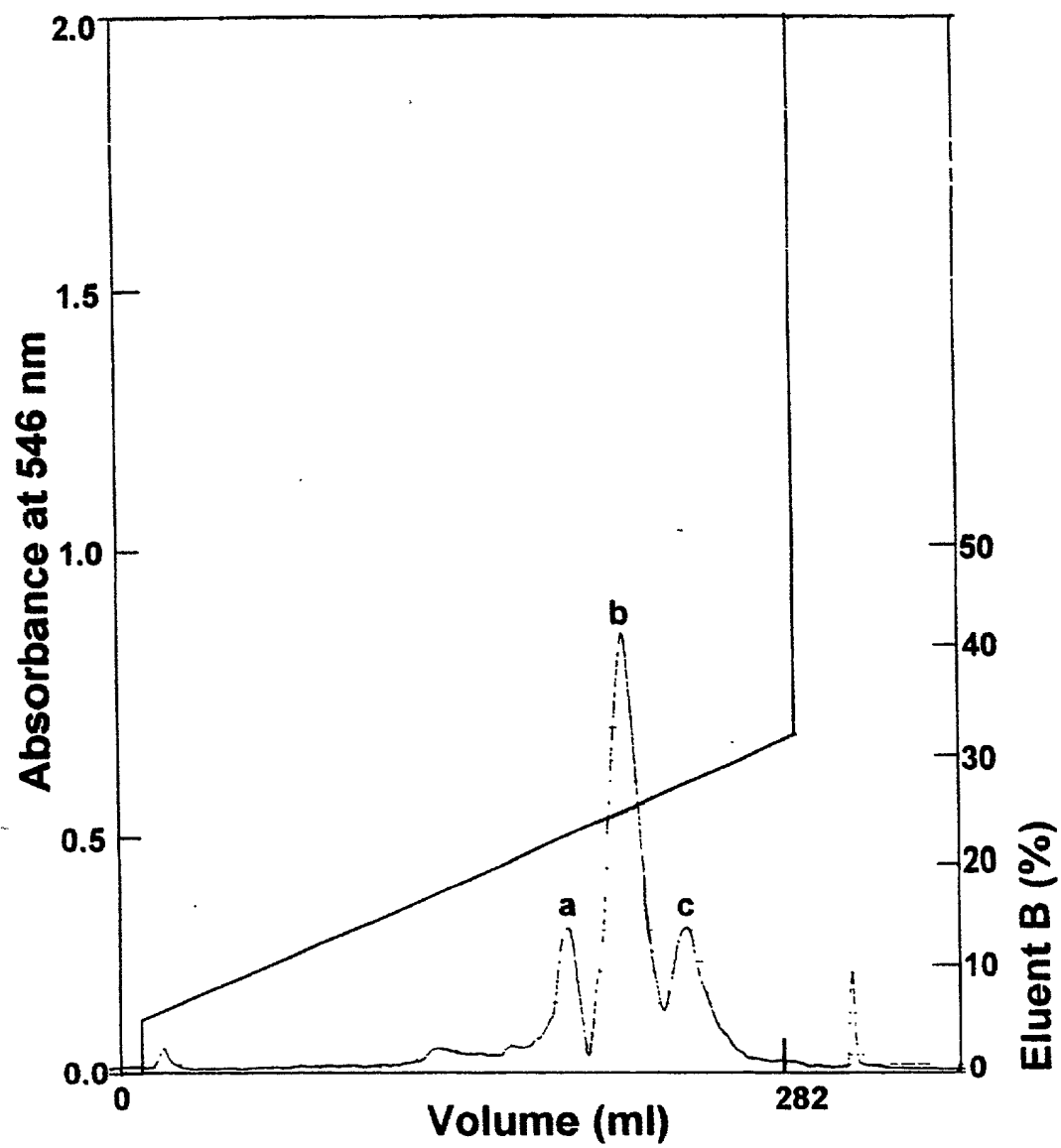


FIG. 2B

FIG. 3A

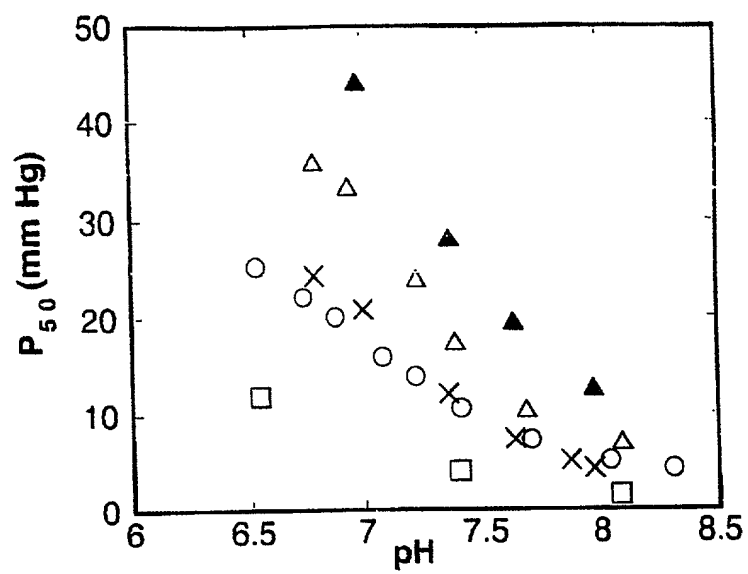
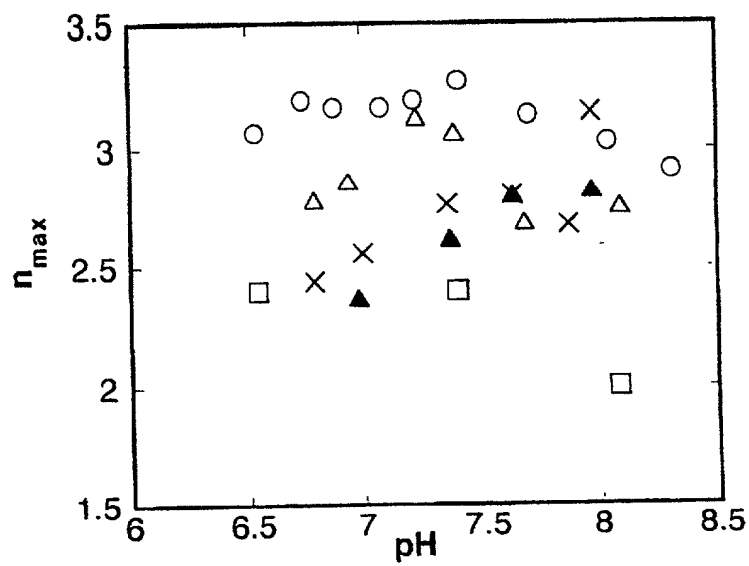


FIG. 3B



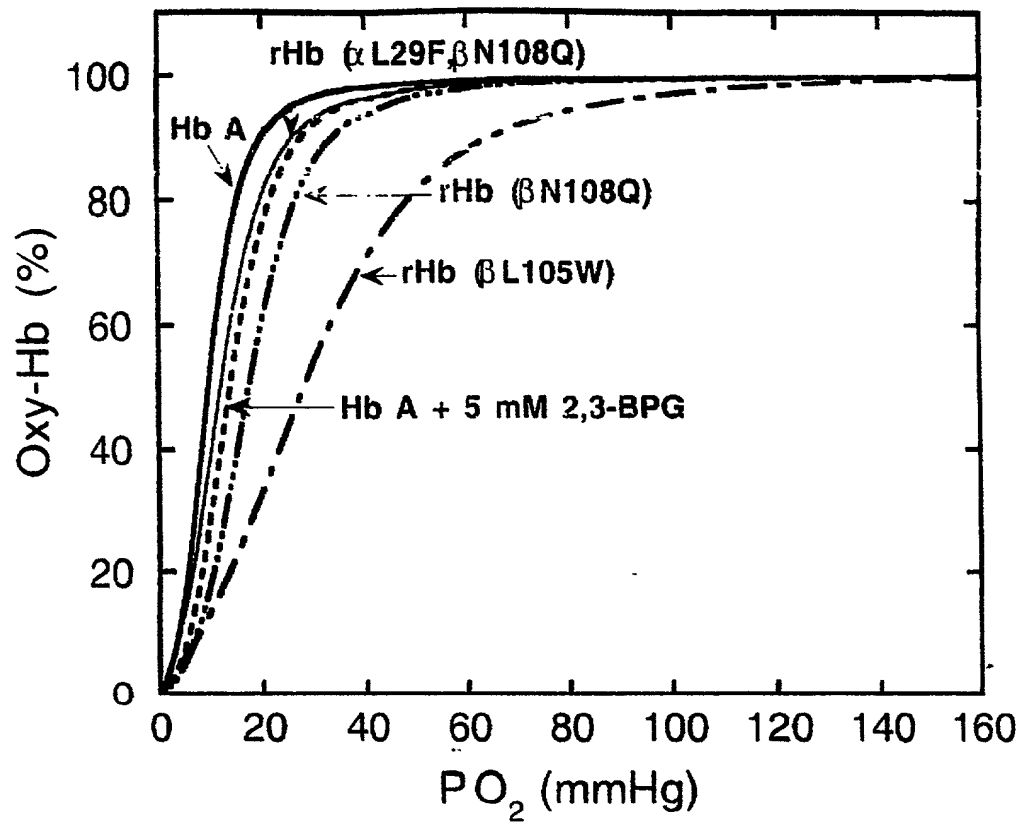


FIG. 4

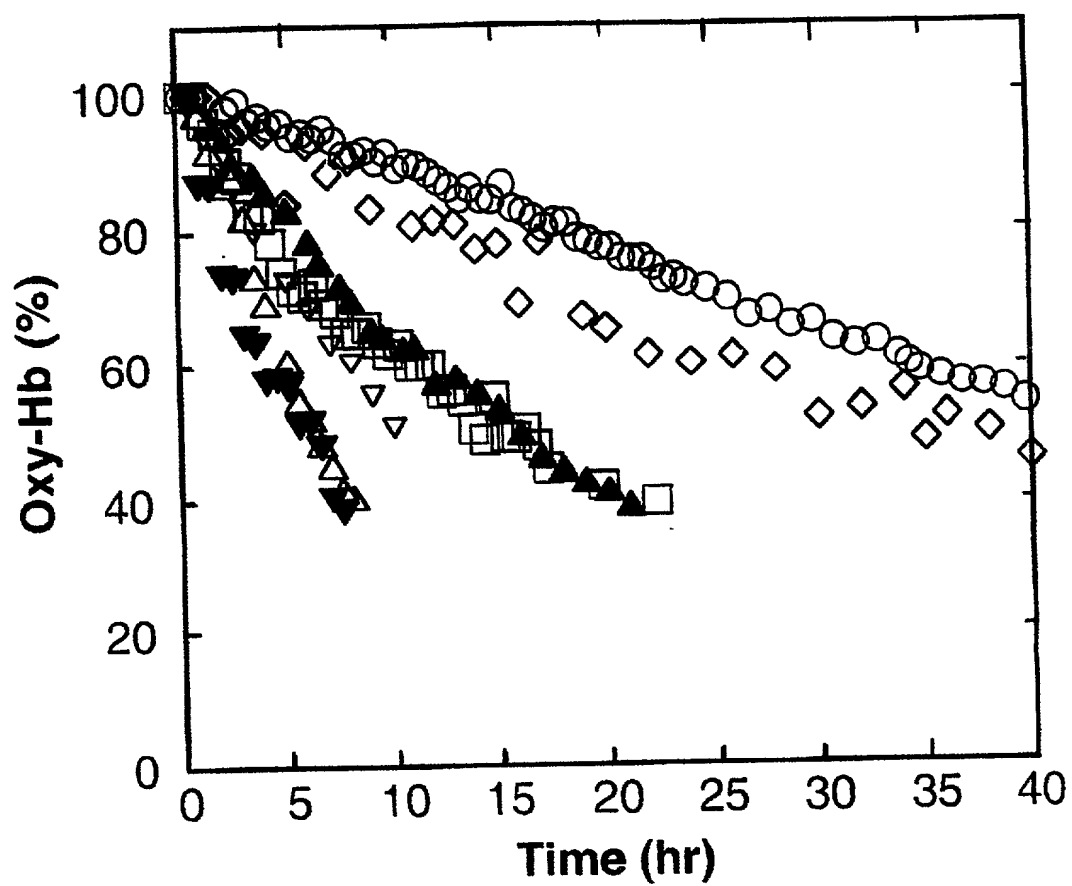


FIG. 5

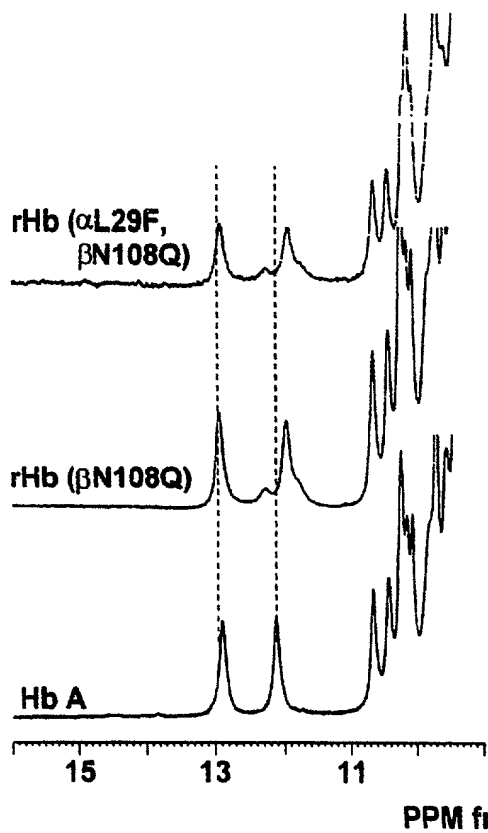


FIG. 6A

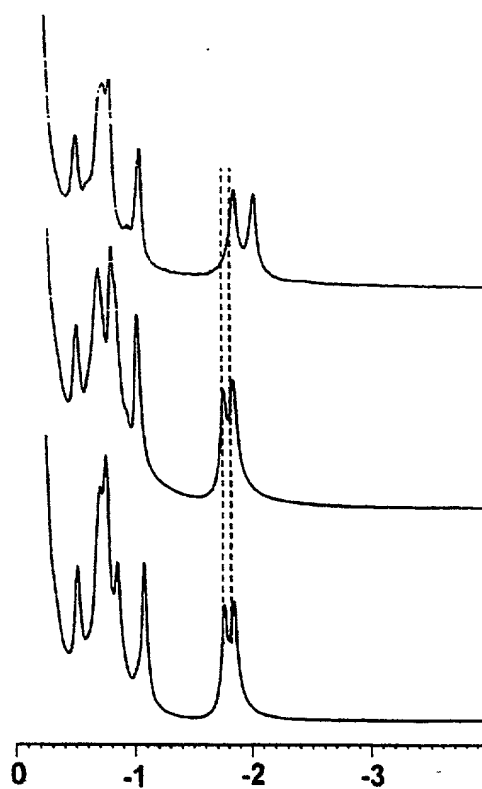


FIG. 6B

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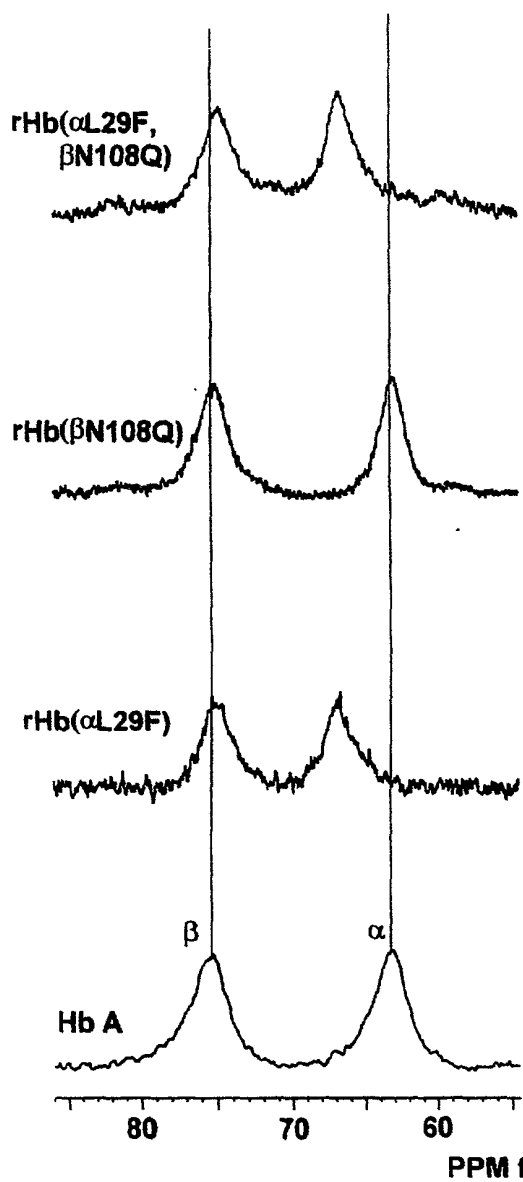


FIG. 7A

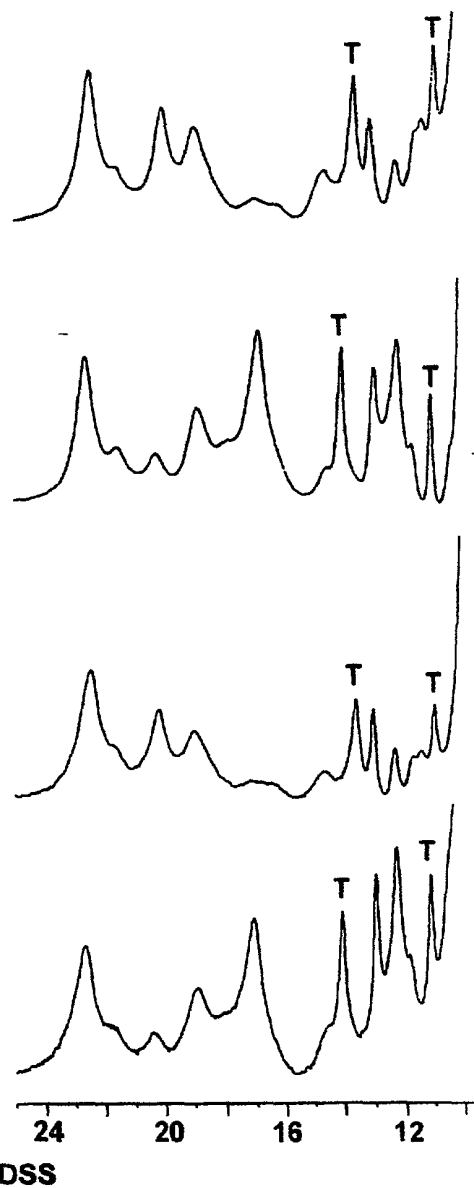


FIG. 7B

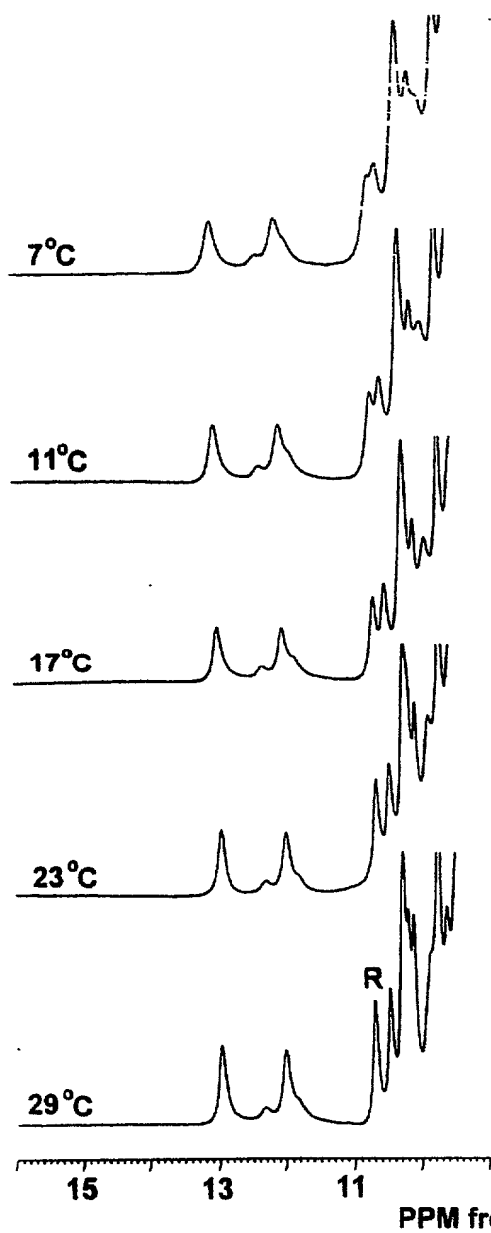


FIG. 8A

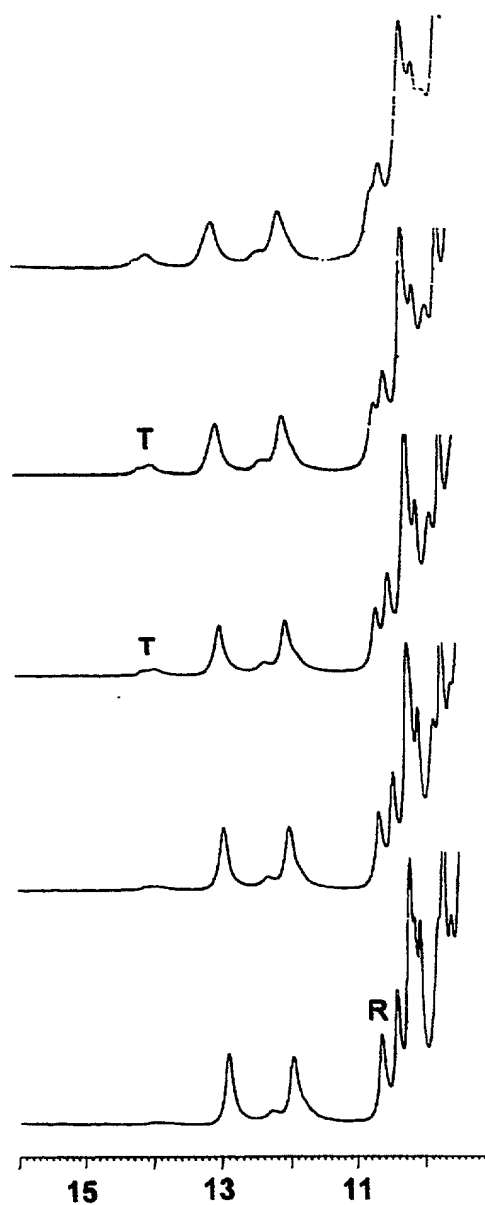


FIG. 8B

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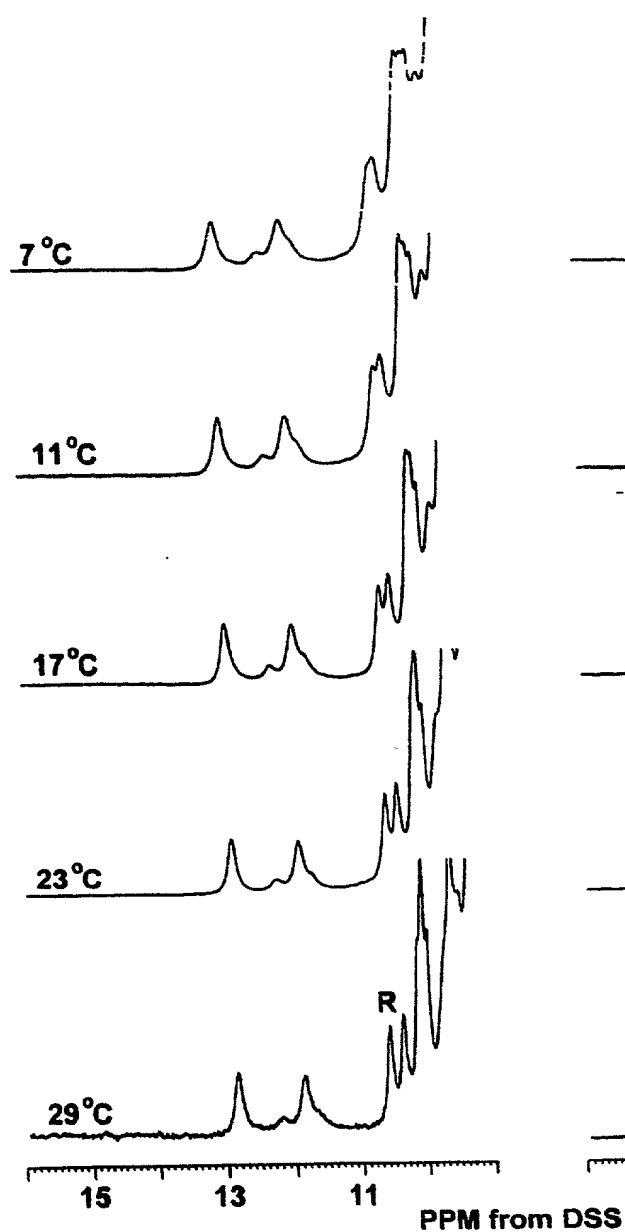


FIG. 9A

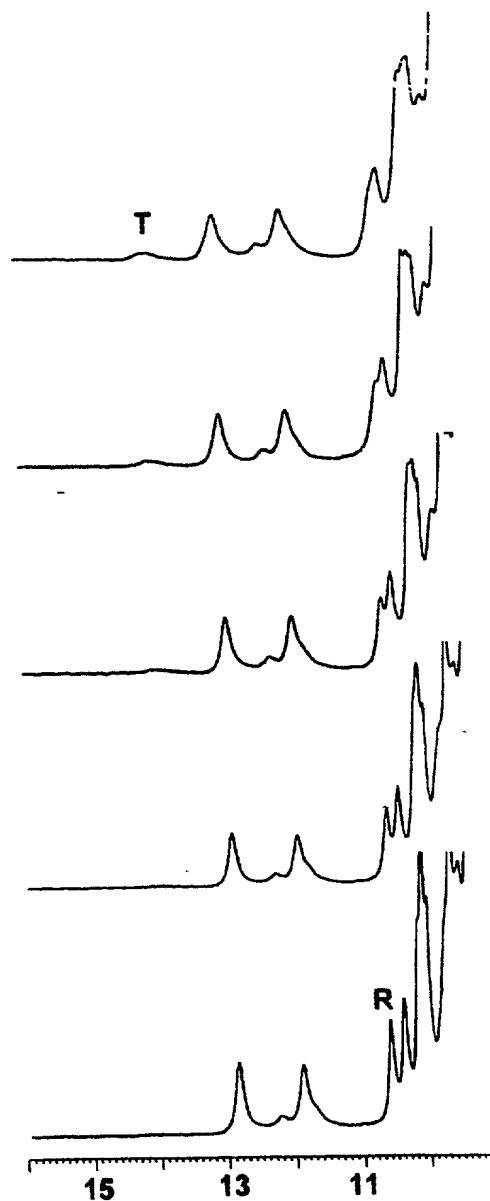


FIG. 9B

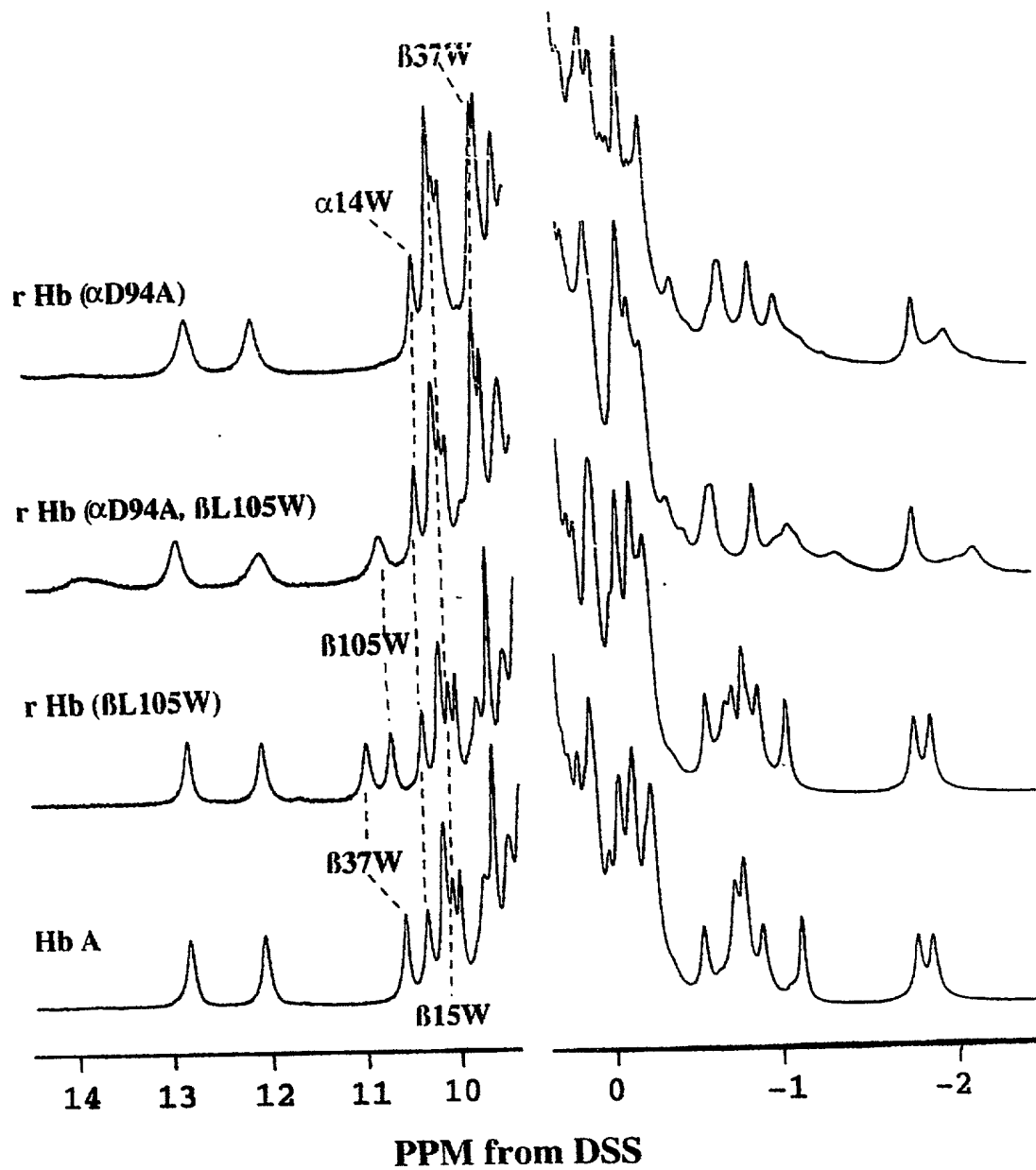


FIG. 10A

FIG. 10B

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FIG. 11A

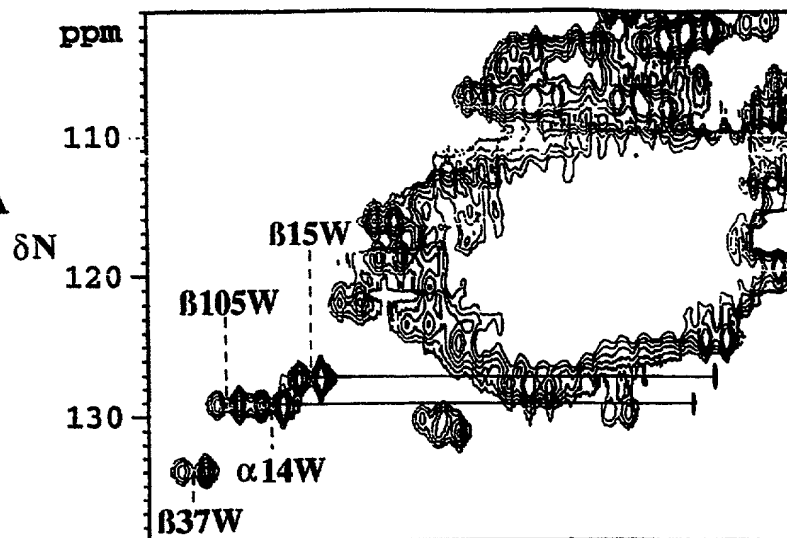


FIG. 11B

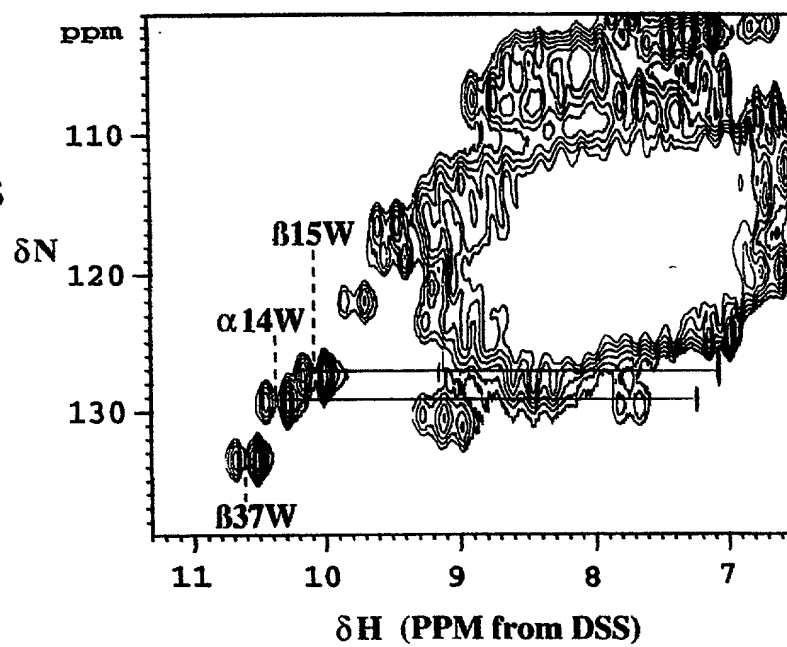


FIG. 12A

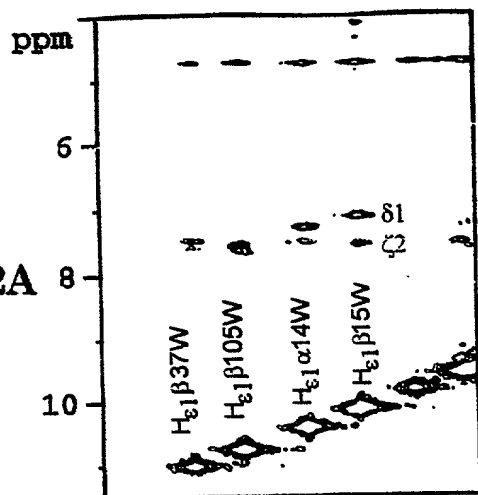


FIG. 12B

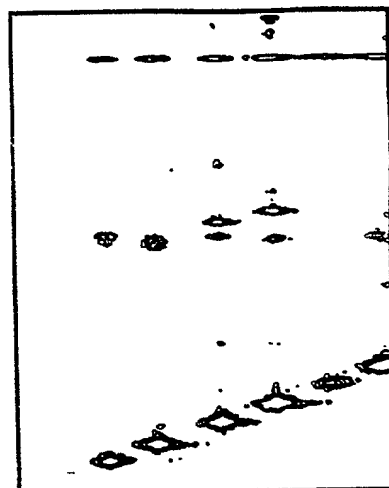


FIG. 12C

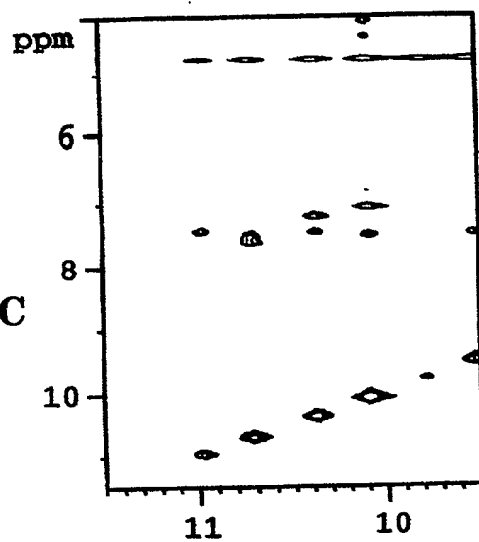
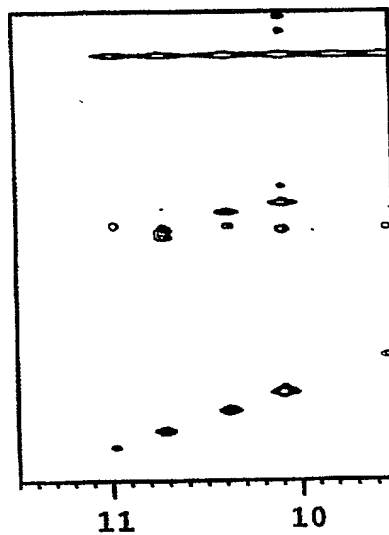


FIG. 12D



PPM from DSS

FIG. 13C

A 2D NMR spectrum of B15W. The horizontal axis is labeled δH (PPM from DSS) and ranges from 13 to 7. The vertical axis is labeled δN (PPM) and ranges from 110 to 160. The spectrum shows several distinct regions of signal. A large, complex region of signal is located in the upper right quadrant, centered around $\delta H \approx 8.5$ and $\delta N \approx 115$. A smaller, more defined region is located in the lower left quadrant, centered around $\delta H \approx 12.5$ and $\delta N \approx 165$. A horizontal line of signal is visible at $\delta N \approx 135$, spanning from $\delta H \approx 12.5$ to $\delta H \approx 10.5$. A vertical dashed line is drawn at $\delta H \approx 10.5$, labeled B15W. A horizontal dashed line is drawn at $\delta N \approx 135$, labeled B105W. A vertical dashed line is drawn at $\delta H \approx 11.5$, labeled B37W. A horizontal dashed line is drawn at $\delta N \approx 145$, labeled $\alpha 14W$.

FIG. 14

FIG. 15A

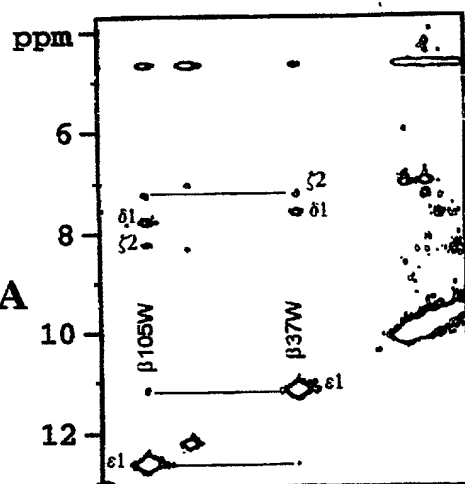


FIG. 15B

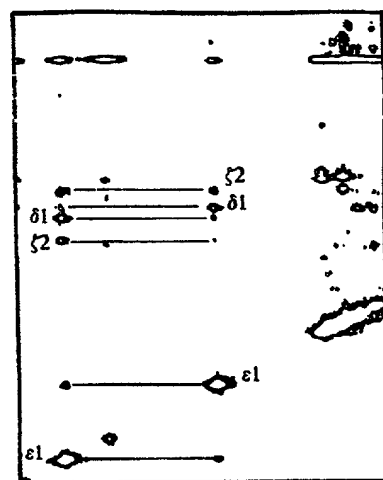


FIG. 15C

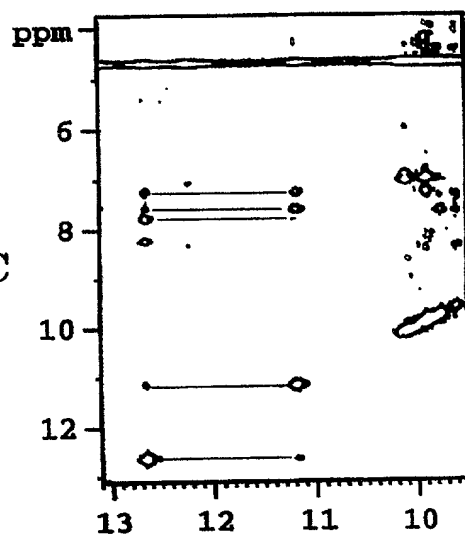
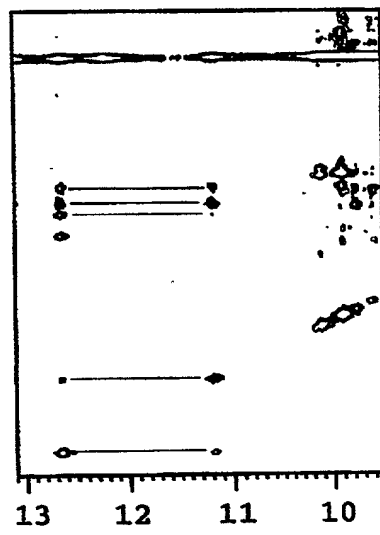


FIG. 15D



PPM from DSS

FIG. 16 A

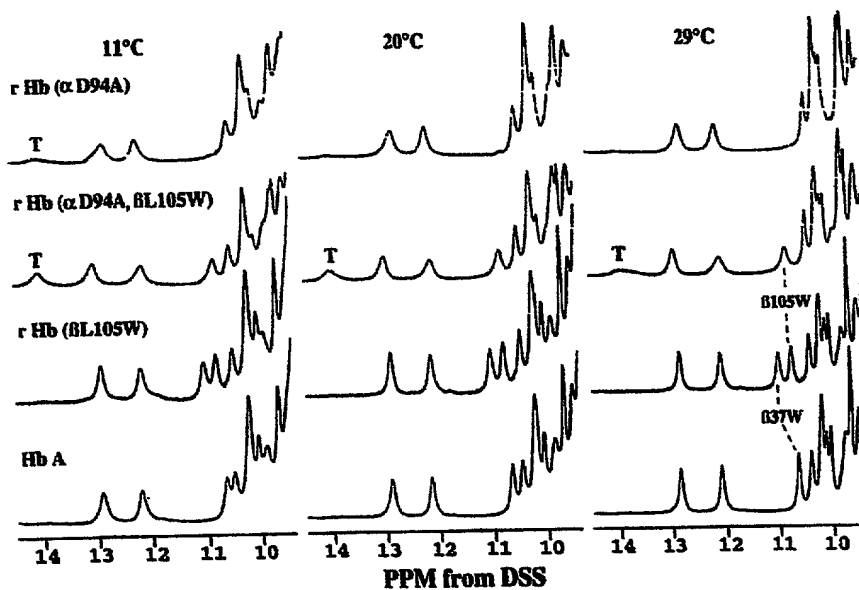
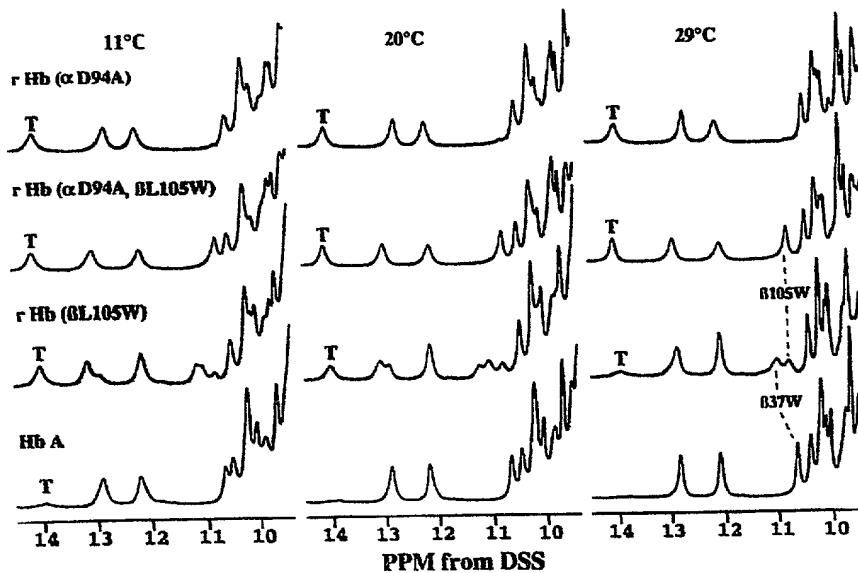


FIG. 16B



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FIG. 17A

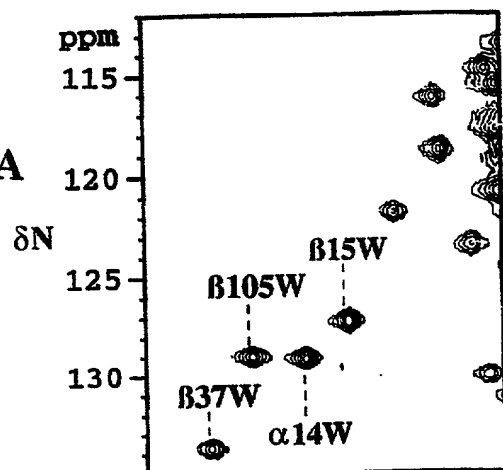


FIG. 17B

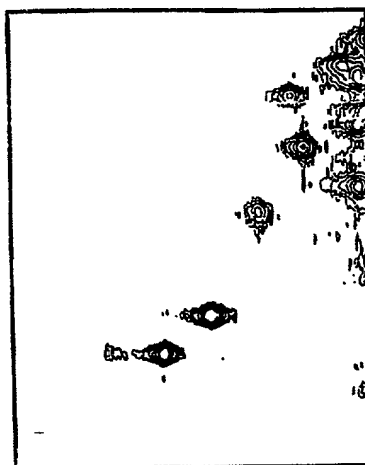


FIG. 17C

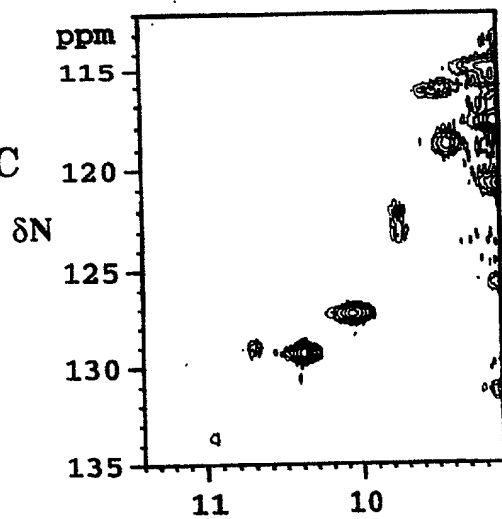
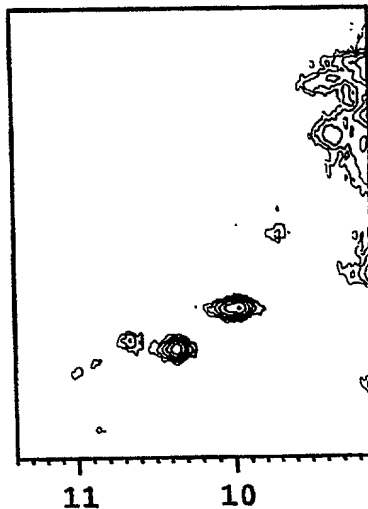


FIG 17D



δH (PPM from DSS)

FIG. 18A

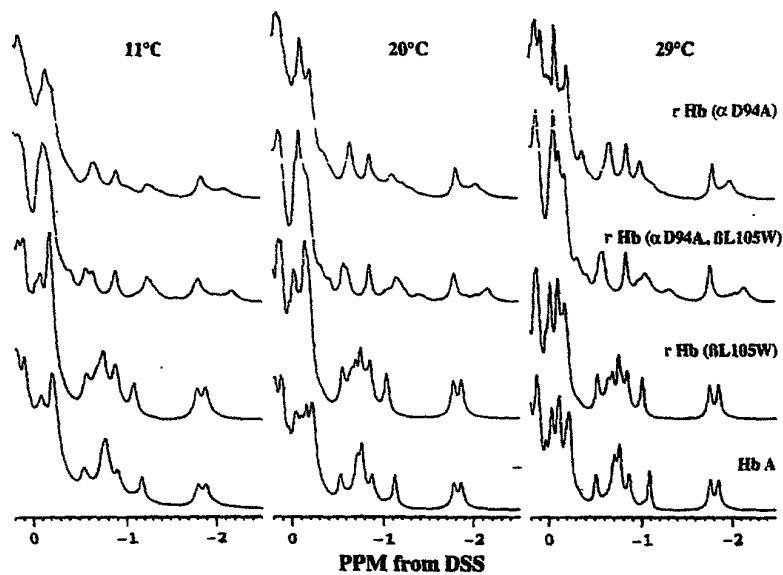


FIG. 18B

